Everest Group®

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Beyond Words: Unveiling the True RoI of Intelligent Document Processing (IDP)

Contents

Introduction

In today's competitive business landscape, enterprises seek cost reductions, faster turnaround times, superior customer experiences, and improved employee productivity. However, the sheer volume and complexity of handling business documents pose a significant challenge to achieving these goals. Navigating through these documents and selecting instrumental data for the enterprise's operations presents an extremely difficult task. Traditional manual document processing methods have become inadequate, leading to delays, errors, and employee dissatisfaction.

Intelligent Document Processing (IDP) emerges as a solution, automating document handling using AI technologies. IDP is not just a technology upgrade; it is a strategic imperative to drive substantial business value. By automating information extraction, processing, and analysis from many document types, IDP empowers organizations to unlock valuable insights and enhance decision-making.

IDP is gaining traction as a vital component of digital transformation, with the software market expected to reach US$2.1 billion by 2025.[1] However, some enterprises hesitate to invest due to unclear RoI.

In this viewpoint, we:

- Examine IDP, including market adoption trends
- Assess key IDP use cases across industries and functions
- Develop an RoI assessment framework – illustrated for three high-potential IDP use cases
- Analyze key success factors to maximize RoI from IDP

By understanding the costs and benefits (both hard and soft) of IDP implementation, decision-makers can build a strong business case for adoption and unlock its full potential within their organizations.

1 Intelligent Document Processing (IDP) State of the Market 2024

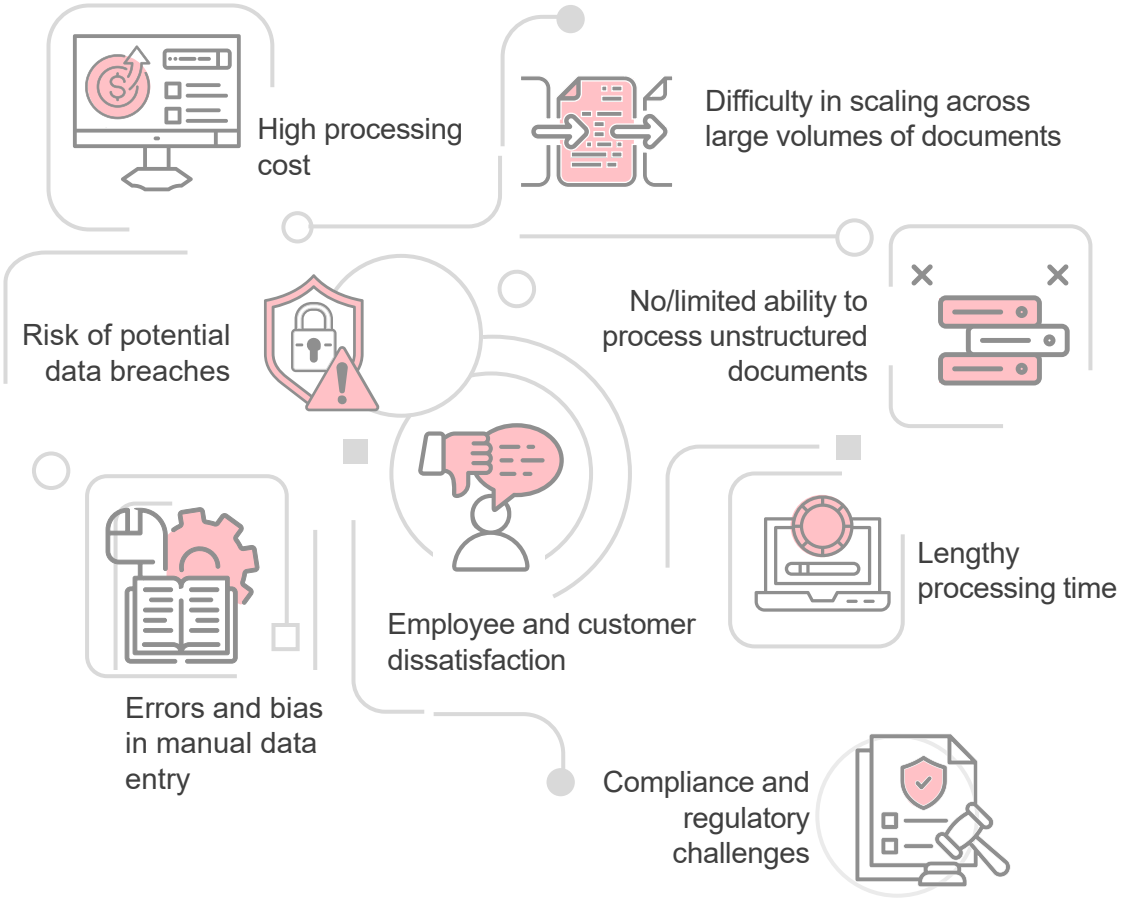
IDP overview

Addressing traditional document processing challenges

Traditional document processing relies on manual sorting and processing vast numbers of documents in varying formats. This approach has several drawbacks, including inefficiencies, high error rates, long processing times, increased costs, and poor stakeholder experience. Exhibit 1 highlights the challenges associated with traditional document processing.

Exhibit 1: Challenges of traditional document processing

Source: Everest Group (2024)



IDP enables enterprises to overcome these challenges by using technologies such as Machine Learning (ML), Natural Language Processing (NLP), and generative AI to extract data efficiently and accurately from various sources such as documents, emails, photos, and videos. By automating the processing of structured, semi-structured, and unstructured documents, IDP significantly reduces processing time, enhances accuracy, minimizes manual labor, and accelerates workflows, ultimately improving employee and customer satisfaction.

Additionally, IDP enables enterprises to create comprehensive audit trails for all processing activities and incorporate field-level business validation rules, ensuring efficiency and compliance. The availability of Application Programming Interfaces (APIs) and other integration tools facilitates the seamless transfer of extracted data into enterprise systems and downstream applications, optimizing and maintaining efficiency in subsequent processes and workflows.

Understanding enterprise-grade IDP solutions and key technologies involved

To fully harness IDP's potential, enterprises must understand the key actions an enterprise-grade IDP solution performs:

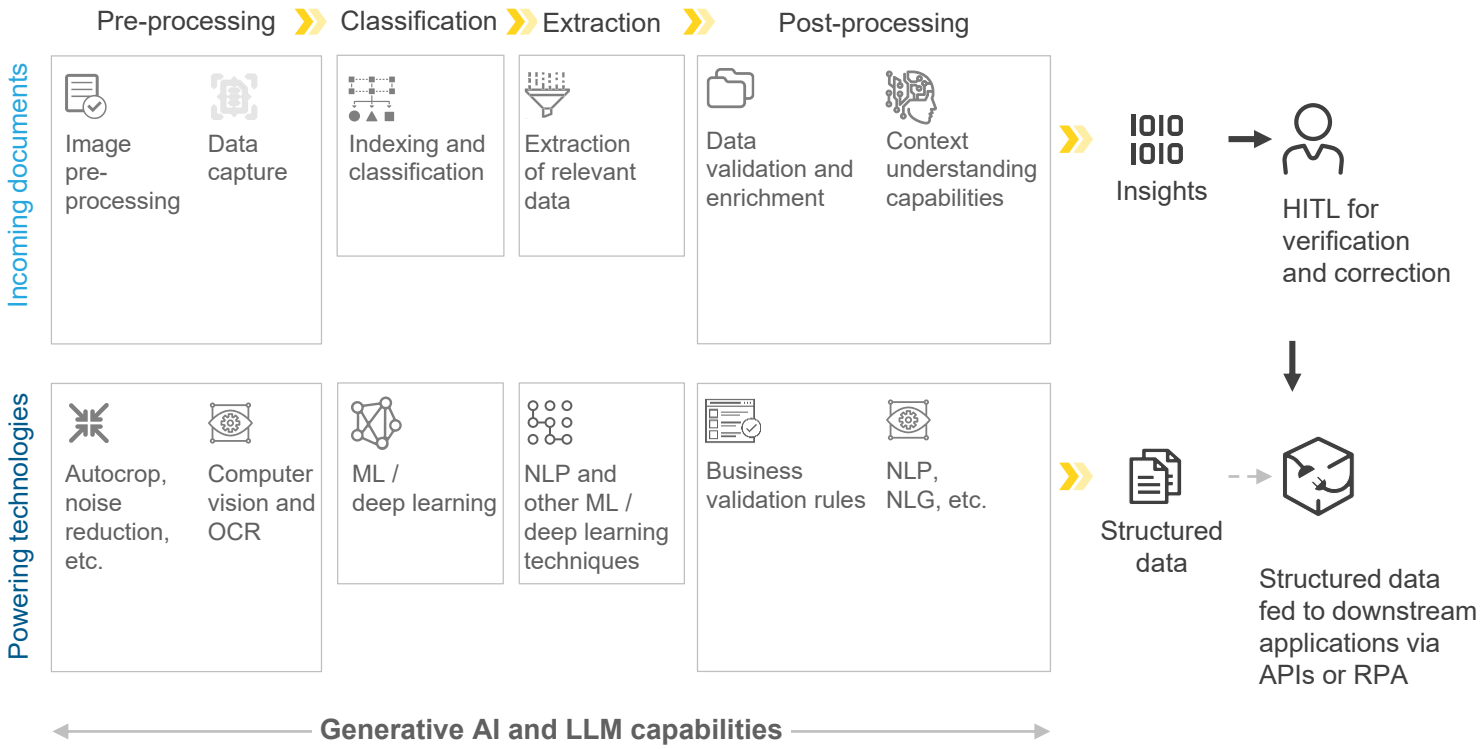
- **Pre-processing:** enhances the scanned document's quality through image pre-processing techniques and converts them into machine-readable text, preparing them for further analysis
- **Classification:** indexes and categorizes documents into distinct groups based on their content, structure, or purpose
- **Extraction:** employs NLP and ML capabilities to extract relevant data points from the documents, regardless of their format or complexity
- **Post-processing/Reconciliation:** validates and refines the extracted data by comparing it against predefined taxonomies, data dictionaries, and business validation rules to ensure accuracy and consistency

Exhibit 2 depicts these actions within an enterprise-grade IDP solution's workflow.

IDP significantly reduces processing time, enhances accuracy, minimizes manual labor, and accelerates workflows, ultimately improving employee and customer satisfaction.

Exhibit 2: An IDP solution's architecture

Source: Everest Group (2024)



Over the past year, several IDP technology providers have invested in generative AI capabilities, either through proprietary Large Language Models (LLMs) or via integration with third-party LLMs. This integration enhances IDP solutions' functionality across all stages of the process. Enterprises can leverage generative AI to train models using synthetic data and enhance extraction and classification.

However, it generates maximum value in the post-processing phase. Generative AI improves functionalities such as document summarization, comparison, translation, Q&A-based search, and analytics.

While generative AI is a relatively recent addition to the IDP toolkit, the following fundamental technologies remain vital:

- **Computer vision:** emulates human vision using AI to automatically extract, analyze, and interpret valuable data from digital images and videos
- **Optical Character Recognition (OCR) / Intelligent Character Recognition (ICR):** OCR uses ML and Deep Learning (DL) to convert scanned documents, PDFs, and images into editable, searchable, and machine-readable text. ICR employs neural networks to identify diverse fonts and handwriting styles for data extraction
- **ML and DL models:** IDP solutions incorporate a variety of ML and DL algorithms and software training techniques, such as n-/zero-shot learning, supervised, unsupervised, and reinforced learning
- **NLP / Natural Language Generation (NLG):** NLP facilitates context understanding, sentiment analysis, and mapping extracted fields to a defined taxonomy. NLG automatically creates summaries of large documents or data from charts

By combining these core technologies with generative AI, IDP solutions can provide a comprehensive and intelligent approach to document processing, unlocking new levels of efficiency, accuracy, and insight for enterprises.

IDP adoption trends

Enterprises' rapid adoption of generative AI has significantly increased awareness of AI-based solutions such as IDP. Integrating generative AI with IDP enhances its ability to handle complex documents such as handwritten notes, diverse invoices, and unstructured emails. This expanded scope, coupled with the ability of low-code/no-code IDP solutions and enterprises' increasing need to streamline document processing, is driving IDP adoption.

In 2023, the IDP software market was valued at approximately US$1,250 million and is expected to grow at a CAGR of 30-35% in the coming years.[1] While North America leads in IDP adoption, MEA and LATAM are experiencing the fastest growth.

In recent years, IDP adoption has surged across industries and functions, with Banking, Financial Services, and Insurance (BFSI) and Finance and Accounting (F&A) holding the dominant market share. However, sectors such as hi-tech and telecom, CPG and retail, and media and entertainment, along with functions such as contact centers and procurement, are exhibiting rapid growth.

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Key IDP use cases across industries and functions

IDP has revolutionized how organizations across industries and functions manage their documents, transforming traditional workflows into streamlined, automated processes. Exhibit 3 lists the key IDP use cases across various industry verticals and key horizontal business functions.

Exhibit 3: Key IDP use cases across horizontal and industry-specific functions

Source: Everest Group (2024)

Horizontal functions

F&A
- Accounts payable processing
- Invoice processing
- Accounts receivable processing

HR
- Resume screening
- Document verification
- Background checks

Procurement
- Contracts processing
- Bills of lading processing
- Purchase order processing

Contact center
- Customer complaints processing
- Customer registration
- Conversational AI real-time validation

Mailroom
- Smart inbox email classification and extraction
- BPO extraction

Travel and logistics
- Travel booking and itinerary management
- Customs documentation processing
- Freight invoice reconciliation

Industry-specific functions

BFSI
- Customer onboarding (KYC)
- Insurance claims processing

Healthcare and pharma
- R&D
- Patient onboarding
- Patient records processing

Capital market
- Trade confirmations
- Insurance contracts processing
- Deal management

Telecom
- Network maintenance documentation
- Contract management

Government sector (including education)
- Employment applications processing
- Tax forms processing
- Social security documentation processing

We will now analyze three high-potential use cases (identified based on the volume and scale of the process) – invoice processing, insurance claims processing, and customer onboarding (banking) – to understand how IDP can transform essential business processes.

Invoice processing

Invoice processing is essential to maintain healthy supplier relationships and ensure timely payments. However, the high volume of invoices, often in varying formats, coupled with manual data entry, leads to numerous challenges:

- **Processing bottlenecks:** Lengthy processing times due to manual data entry and validation
- **Increased errors:** Human errors in data entry can lead to incorrect payments and potential financial losses
- **Compliance risks:** Manual processes can make it difficult to adhere to regulations
- **Negative experiences:** Delays and errors negatively impact both employee satisfaction and supplier relationships

IDP's role	Outcome
IDP addresses these challenges by: Accurately extracting and validating invoice data (such as invoice number, seller name, and total price) against purchase orders, contracts, and databases, flagging discrepancies for review.	By automating and optimizing invoice processing, IDP delivers significant benefits: Timely payments strengthen supplier relationships and improve cash flow.
Automatically routing invoices to the appropriate departments or individuals, accelerating the approval process.	Automated validation and auditing features ensure data accuracy and adherence to regulations.
Integrating with Enterprise Resource Planning (ERP) systems to update financial records and initiate payments seamlessly.	Reduced manual effort frees up staff for higher-value tasks, improves overall productivity, and enhances employee satisfaction.
Ensuring that all invoices comply with relevant regulations and standards.	
Streamlining implementation and enabling enterprises to handle a variety of invoice formats via out-of-the-box (OOTB) solutions for invoice processing.	

Insurance claims processing

The insurance industry, heavily regulated like banking, faces the challenge of processing large volumes of claims while ensuring compliance and detecting fraud. Manual data entry, a common practice, is time-consuming, prone to errors, and can lead to significant consequences:

- **Delays in claims adjudication:** Manual processing creates bottlenecks, delaying claims resolution and frustrating customers
- **Lowered satisfaction:** Slow and error-prone processing negatively impacts both employee morale and customer satisfaction
- **Financial losses:** Errors can result in overpayments or underpayments, which can cause financial losses for the insurance company
- **Increased costs:** Manual processes are labor-intensive and expensive, increasing administrative costs
- **Fraudulent claims:** Manual processes make it difficult to identify and prevent fraudulent claims

IDP's role	Outcome
IDP addresses these challenges by:	Implementing IDP in claims processing yields substantial benefits:
Accurately extracting relevant details from claim documents, including claim forms, medical reports, invoices, and supporting documents, and mapping them to corresponding policy and historical records.	IDP's fraud detection capabilities and compliance features ensure secure and compliant claims management.
Validating claim details against sources such as online searches, news articles, social media, and criminal databases to identify potential fraud indicators.	Automated data extraction, validation, and routing accelerate the claims process, leading to faster resolution.
Classifying incoming claims and routing them to the appropriate departments or personnel for further processing based on predefined workflows.	Minimizes human errors, ensuring accurate and consistent claims processing.
Leveraging AI/ML algorithms to analyze patterns and detect anomalies in claims data that may suggest fraudulent activities.	Streamlined processes reduce administrative costs and prevent financial losses due to errors or fraud.
	Faster, more accurate claims processing improves the overall experience for both customers and employees.

Customer onboarding (banking)

Banking, as a heavily regulated industry, faces the challenge of ensuring Know Your Customer (KYC), Anti-money Laundering (AML), and other compliance requirements during customer onboarding. Manual processes for verifying customer identities and documents pose several difficulties:

- **Lengthy onboarding times:** Manual data entry and verification from various documents lead to extended onboarding times, causing customer frustration
- **Increased risk of fraud:** Manual processes are susceptible to errors and fraud, potentially exposing the bank to financial and reputational risks
- **Compliance challenges:** Keeping up with evolving regulatory requirements and ensuring accurate data validation is difficult with manual methods

IDP's role	Outcome
IDP addresses these challenges by:	Implementing IDP in customer onboarding delivers significant benefits:
Accurately extracting and processing data from customer documents (IDs, utility bills, and bank statements), reducing manual effort and errors.	Accurate data capture and validation minimize errors and ensure regulatory compliance.
Validating customer information against various sources, including background verification documents, to identify anomalies and potential fraud.	Automated processes significantly reduce onboarding time, improving customer satisfaction.
Assessing an applicant's creditworthiness based on their credit reports, providing valuable insights for risk assessment.	IDP's advanced fraud detection capabilities mitigate risks and protect the bank's reputation.
Safeguarding sensitive customer information during processing, ensuring compliance with data protection regulations.	IDP can easily handle large volumes of documents, accommodating growing customer bases without increasing staffing needs.
Automatically validating data against KYC, AML, and other regulations, maintaining a clear audit trail for verification.	Automating repetitive tasks frees up employees to focus on higher-value activities, such as building customer relationships.
Providing pre-built integration with core banking and Customer Relationship Management (CRM) systems to update new customer information.	

A framework to assess IDP's RoI

Having explored IDP's role in streamlining and automating processes across industries, we now present a framework for enterprises to evaluate IDP solutions' RoI. To illustrate this framework, we will examine three different use cases across hypothetical enterprises using IDP.

RoI is fundamentally determined by the benefits an organization gains from deploying IDP, balanced against its implementation costs. In this section, we analyze various costs and benefits that enterprises must consider when evaluating an IDP solution's RoI. This analysis includes assumptions and estimations made while developing the RoI assessment frameworks for the three use cases.

Costs

Adopting an IDP solution involves several costs. We discuss some of the key costs below.

- **Initial setup cost:** This one-time expense encompasses workflow development, training for a percentage of the total FTEs involved in document processing, and integration with existing enterprise systems
- **License cost:** This is a tiered, volume-based fee tied to the total number of pages/documents processed using the IDP solution annually. The average cost ranges from US$0.25-0.38 per page/document, depending on the use case's complexity
- **Maintenance cost:** This recurring cost covers the annual salary of the FTEs responsible for managing and maintaining the IDP solution
- **Infrastructure and hosting cost:** This expense includes the cost of any necessary infrastructure, such as Graphics Processing Unit (GPU) / Central Processing Unit (CPU), and hosting fees for running the solution within the enterprise. The hosting cost is estimated as a percentage of the yearly license cost
- **People cost:** This is the hourly cost of FTEs using IDP for document processing. It also includes the cost of FTEs reassigned to higher-value tasks but still paid at the hourly rate of a document processing FTE. The blended hourly rate is estimated at US$25, US$26, and US$27 for the first, second, and third years, respectively

Benefits

Organizations implementing IDP realize a combination of hard (quantifiable) and soft (unquantifiable) benefits:

Hard benefits

- **Productivity improvement:** This stems from the ability to process more work or reassign employees to higher-value tasks due to increased Straight-through Processing (STP) rates over time. We assume 50% of FTE hours saved are redirected to higher-order work valued at US$30, US$31, and US$32 per hour in the first, second, and third years, respectively
- **Cost savings:** Reduced FTE costs are achieved by requiring fewer employees to process documents through IDP. We assume the remaining 50% of FTE hours saved translates directly into cost savings
- **Avoided legacy system costs:** Phasing out legacy systems such as OCR eliminates associated licensing, infrastructure, and maintenance costs (including people cost of specialized employees/developers required to maintain old systems). We assume a 50% phase-out in the first year, followed by complete elimination by end of year 3

Soft benefits

- **Error reduction:** Preventing human errors such as processing false claims or paying duplicate invoices
- **Improved compliance:** Implementing robust compliance protocols to mitigate potential financial penalties due to noncompliance
- **Increased capacity:** Ability to expand capacity with the same or less resources
- **Enhanced experiences:** Improving both customer and employee satisfaction due to faster, more accurate, and efficient processes

We have estimated these benefits as a percentage of the hard benefits to quantify them.

Now that we have established the key cost and benefit categories, let us examine how to develop a framework for assessing IDP's RoI using the following hypothetical cases.

RoI assessment for invoice processing

To assess the RoI of IDP in invoice processing, we examine a hypothetical US-based manufacturing enterprise with global operations.

Assumptions

- The enterprise processes five million invoices annually. About 435 FTEs are involved in invoice processing, each handling 11,500 invoices per year, implying 0.18 hours per invoice, assuming 40 work hours per week for 52 weeks in a year
- Per-page licensing costs are assumed to be on the lower end (around US$0.25) due to the relative simplicity of invoice processing with limited variability in the format and structure

- One FTE is needed for initial solution development and two FTEs for annual maintenance
- Invoice volumes scale to six million and seven million in the second and third years, respectively
- STP rates increase annually, reaching 90%, 95%, and 98% in the first, second, and third years
- Soft benefits are assumed to be 30% of the hard benefits

Approach

We calculate the costs and gross benefits of deploying IDP for invoice processing in year one. Net benefit is derived by subtracting setup, licensing, maintenance, hosting, and people costs from the gross benefits. Exhibit 4 illustrates the year one net benefit.

Exhibit 4: Calculating an IDP solution's year one costs, benefits, and net benefit for invoice processing

Source: Everest Group (2024)

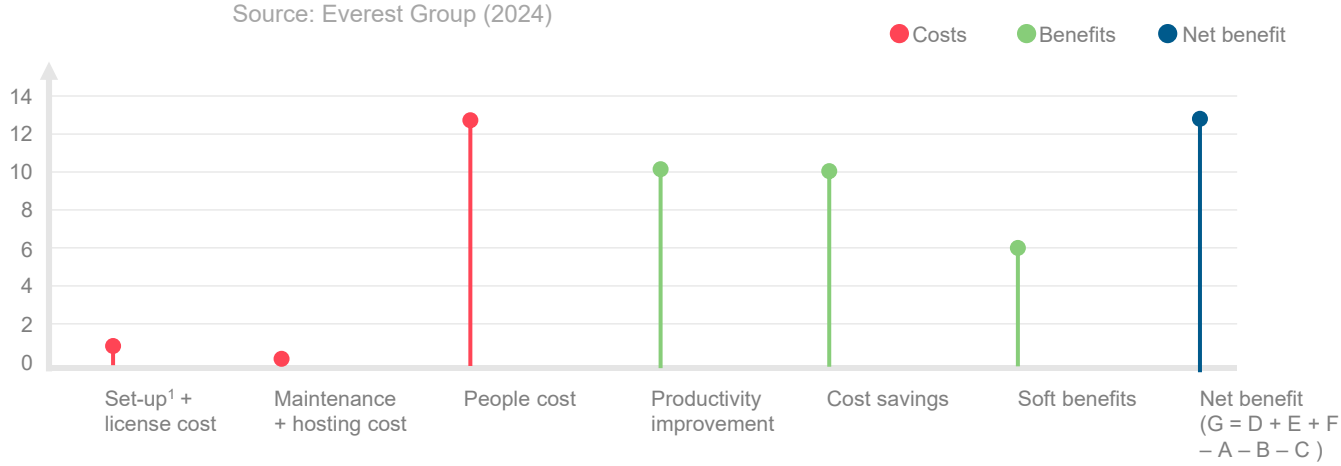


Exhibit 5 depicts the RoI over three years by replicating the net benefit calculation for subsequent years with increased scale.

Exhibit 5: Invoice processing – RoI comparison across years one, two, and three

Source: Everest Group (2024)

	Year 1	Year 2	Year 3
Scale	5 million	6 million	7 million
RoI	98%	124%	137%

1 Setup cost is a one-time expense incurred only in year one

Outcome

Costs, benefits, and RoI vary depending on enterprise size and operations. In this case, the enterprise generated cumulative benefits approximately 2.22 times the cumulative costs of implementing IDP. Notably, the RoI increases proportionally with higher invoice volumes and STP rates. The ability to generate greater benefits by processing more invoices without significant additional costs makes invoice processing an ideal starting point for enterprise IDP adoption.

RoI assessment for insurance claims processing

To assess the RoI of IDP in insurance claims processing, we analyze a hypothetical US-based health insurance company.

Assumptions

- The company processes three million claims annually
- About 350 FTEs are involved in claims processing, each handling 8,500 claims per year, averaging 0.24 hours per claim, assuming 40 work hours per week for 52 weeks in a year
- Per-page licensing costs are higher than invoice processing due to the varied formats in claims structure
- One FTE is needed for initial solution development and two FTEs for annual maintenance
- Claim volumes increases from 3 million in the first year to to 3.7 million and 4.4 million in the second and third years, respectively
- STP rates gradually rise to 90%, 93%, and 96% over three years
- Soft benefits are assumed to be 30% of the hard benefits

Approach

Similar to invoice processing, we calculate net benefits by subtracting total costs from the gross benefits. Exhibit 6 details the calculations for total costs, gross benefits, and net benefits in year one.

Exhibit 6: Calculating an IDP solution's year one costs, benefits, and net benefit for insurance claims processing

Source: Everest Group (2024)

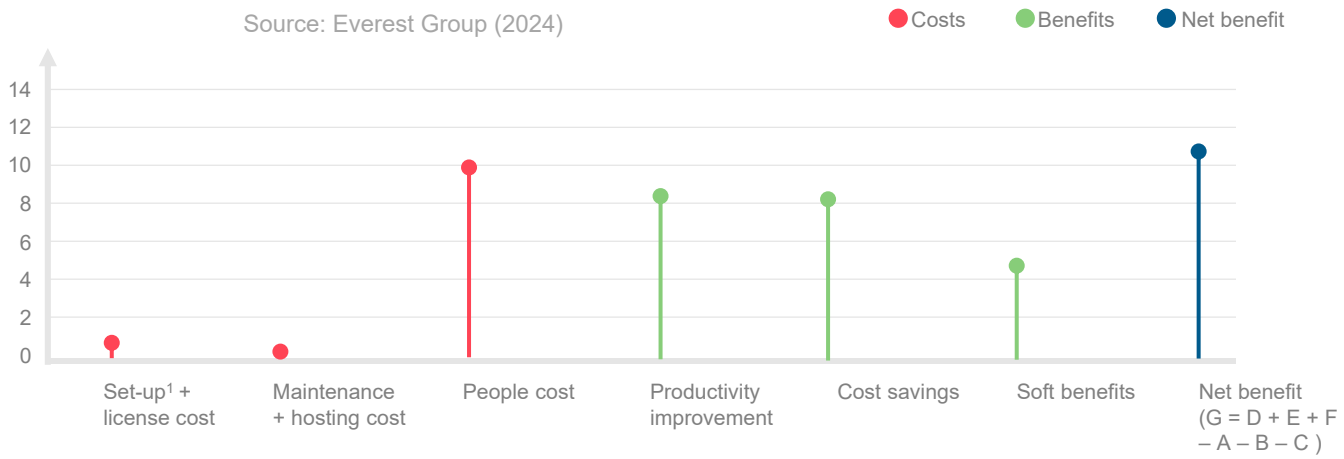


Exhibit 7 compares the RoI as the scale increases over three years.

Exhibit 7: Insurance claims processing – RoI comparison across years one, two, and three

Source: Everest Group (2024)

	Year 1	Year 2	Year 3
Scale	3 million	3.7 million	4.4 million
RoI	97%	114%	128%

Outcome

In this case, the cumulative benefits of adopting IDP for claims processing are 2.15 times the associated cumulative costs, and the RoI increases with scale. The RoI for claims processing is almost the same as invoice processing in the first year, however, the difference is greater over subsequent years. Since claims processing is relatively complex, automating the manual process helps achieve almost similar RoI at a lower scale as compared to invoice processing in the first year. As the volume of invoices processed increases, it generates economies of scale, causing invoice processing's RoI to outweigh that of claims processing in the subsequent years.

1 Setup cost is a one-time expense incurred only in year one

RoI assessment for customer onboarding

For this use case, we analyze a hypothetical US-based commercial bank.

Assumptions

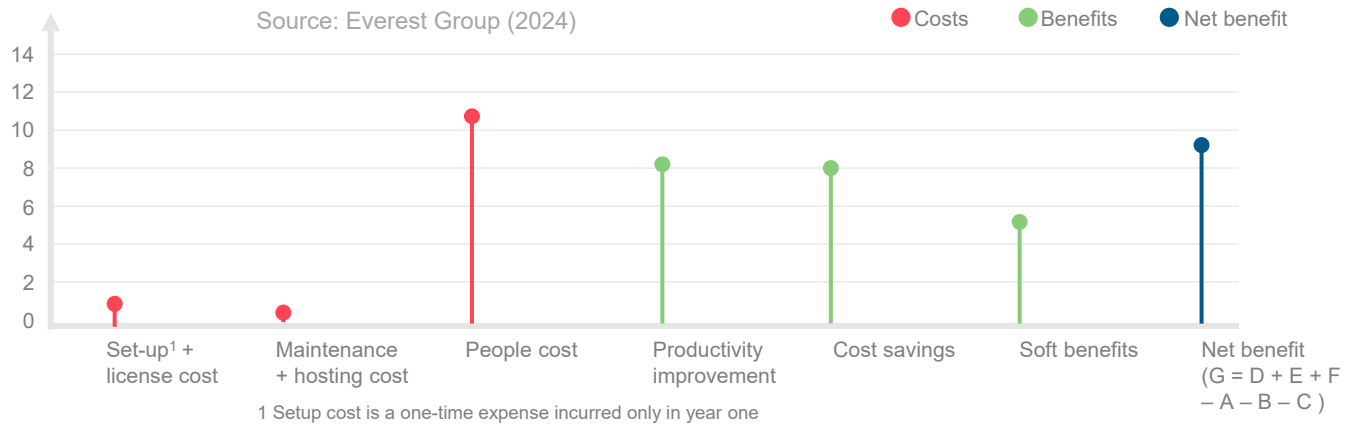
- The bank onboards 500,000 new customers annually
- Each customer submits an average of five documents (such as proof of identity, income, address, KYC, and consent form) totaling 2.5 million documents per year
- Onboarding one customer (five documents) takes 1.5 hours or 0.3 hours per document
- About 360 FTEs handle onboarding, each processing 6,930 documents annually
- Per-page licensing costs are higher than invoice or claims processing due to document complexity and scanned images
- Two FTEs are needed for initial solution development and three for annual maintenance
- Onboarding increases by 100,000 customers in subsequent years, reaching 3 million and 3.5 million documents
- STP rates are 85%, 90%, and 94% over three years. The need for manual review of complex data results in lower rates compared to invoice and claims processing
- Soft benefits are estimated to be 35 % of the hard benefits in this case as compared to 30% in invoice and claims processing because this process involves more direct customer interactions, having a direct impact on stakeholder experience

Approach

As with the previous cases, we calculate net benefit as the difference between gross benefits and total costs. Exhibit 8 illustrates the costs, gross benefits, and net benefits of deploying the IDP solution in year one.

Exhibit 8: Calculating an IDP solution's year one costs, benefits, and net benefit for customer onboarding

Source: Everest Group (2024)



1 Setup cost is a one-time expense incurred only in year one

Exhibit 9 compares the RoI over three years for customer onboarding.

Exhibit 9: Customer onboarding – RoI comparison across years one, two, and three

Source: Everest Group (2024)

	Year 1	Year 2	Year 3
Scale	2.5 million	3 million	3.5 million
RoI	81%	109%	126%

Outcome

In this case, the cumulative benefits are 2.07 times the cumulative costs. RoI is lower than invoice or insurance claims processing due to higher licensing, development, and maintenance costs, stemming from document complexity. Lower STP rates also lead to relatively lower productivity gains and cost savings. However, the use case highlights the relationship between increasing RoI and scale, as RoI improves with the growing volume of processed documents.

Key success factors to maximize RoI from IDP

IDP can revolutionize content-intensive business processes, driving a range of operational and strategic benefits for organizations. However, maximizing its RoI requires a strategic approach. Here are the key success factors:

Define a holistic vision with clear objectives and measurable outcomes

- Analyze high-potential processes to understand opportunities for automation. Clearly document the objectives and goals you are trying to achieve by adopting IDP
- Understand what you can expect in terms of STP rates and accuracy levels to set realistic targets. Set realistic implementation timelines
- Establish KPIs to track IDP's effectiveness and its impact on business metrics such as efficiency, accuracy, cost reduction, compliance, and customer experience

Identify and prioritize high-impact use cases

- Identify and prioritize appropriate use cases for implementation based on document volume and complexity. High current or anticipated document volumes indicate a strong fit for IDP adoption
- Consider factors such as risk management, integration flexibility, and potential tangible and intangible benefits when prioritizing use cases

Select the right IDP product and service partners

- Choose an IDP solution that aligns with your organizational requirements, can handle varying document volumes and formats without sacrificing performance and processing speed, and offers open communication regarding future product advances
- Find service partners that offer comprehensive support, including feature usage guidance, regular updates, and assistance in establishing governance structures

Plan a phased deployment and ensure seamless integration with the existing technology landscape

- Begin with a few high-value use cases to test and refine the approach before scaling to enterprise-wide deployment, providing enterprises the opportunity to assess hurdles and course correct, as needed
- Ensure seamless integration of extracted data with existing ERP systems and downstream applications
- Integrate IDP with other automation solutions, such as Robotic Process Automation (RPA) and conversational AI, to achieve holistic automation
- Consider embedding the IDP team within the automation Center of Excellence (CoE) for cross-skilling and knowledge-sharing

Invest in structured training and change management

- Secure executive support and communicate IDP initiatives' strategic importance throughout the organization
- Provide comprehensive training programs to equip employees with the skills to use the IDP solution effectively
- Implement a structured change management plan to address potential resistance and ensure smooth adoption

Ensure continuous monitoring and optimization

- Regularly monitor and analyze IDP performance using analytics and reporting features
- Identify and address bottlenecks or inefficiencies to optimize processes continuously
- Adapt the underlying model based on new document variations or errors identified through human-in-the-loop feedback

By implementing these best practices, businesses can maximize the RoI of their IDP investments and achieve significant operational gains.

Conclusion

IDP leverages technologies such as generative AI, computer vision, OCR, and NLP/NLG to revolutionize document management across various industries and functions. By automating document processing, IDP improves accuracy, compliance, speed, and employee and customer experience while reducing costs.

While IDP adoption is rising, some enterprises hesitate due to uncertainty about IDP's RoI. To address this, we have developed a framework that identifies various cost and benefit categories associated with IDP deployment, allowing enterprises to estimate potential RoI.

Through hypothetical scenarios of three high-potential use cases – invoice processing, insurance claims processing, and customer onboarding – we demonstrate that IDP RoI increases with scale, making high-volume, low-complexity use cases such as invoice processing ideal starting points for IDP adoption.

To maximize the RoI of their IDP solutions, enterprises must focus on setting clear objectives, prioritizing suitable use cases, selecting appropriate products and service partners, and implementing effective change management programs.

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